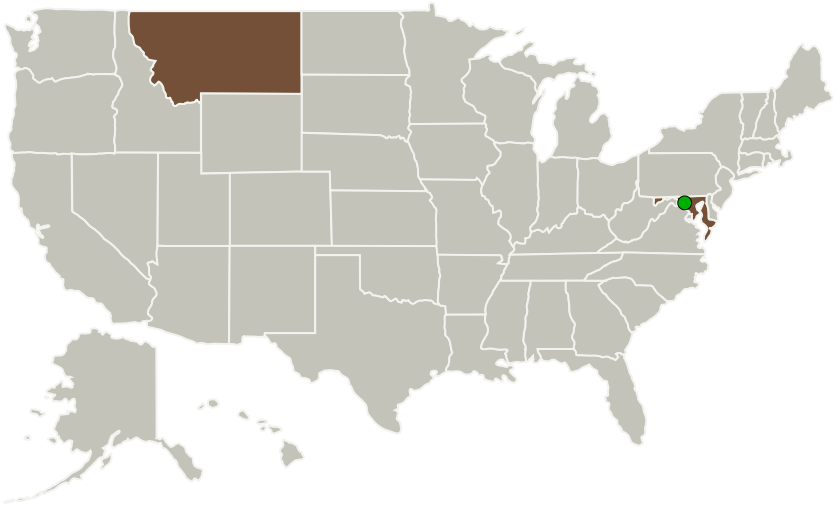
The GlideSonde: A Lifting Body Guided Dropsonde, Phase I

Completed Technology Project (2011 - 2011)

Project Introduction

Dropsondes are one of the primary in-situ measurement tools available to research aircraft and Unmanned Aerial Vehicles (UAVs). Unlike sensors mounted on aircraft, dropsondes allow a vertical profile of the atmosphere to be taken below the aircraft. A guided dropsonde which could glide away from the launch aircraft will allow profiles to be taken away from the aircraft flight path, and would offer aircraft the ability to deploy dropsondes into dangerous environments, such as thunderstorms and volcanic plumes, where few aircraft are able to safely venture. Anasphere, Inc., in cooperation with Vanilla Aircraft, Inc., proposes to develop a guided dropsonde to meet this need. This dropsonde will be designed as a lifting body. It will build upon an existing miniature dropsonde developed by Anasphere, have essentially no moving parts, retain the ability to return wind profiles along with accurate meteorological data, and have sufficient speed to penetrate moderate headwinds. Phase I work will include designing and prototyping the aerodynamic form, integrating essential guidance electronics, and conducting extensive glide tests. Phase II work will include the integration of complete sensor, guidance, and communications payloads, refinement of the aerodynamic form, and extensive live flight tests from high altitude.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Anasphere, Inc.	Lead Organization	Industry	Belgrade, Montana
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Montana

Project Transitions

February 2011: Project Start

August 2011: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138579)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Anasphere, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

John A Bognar

Co-Investigator:

John Bognar

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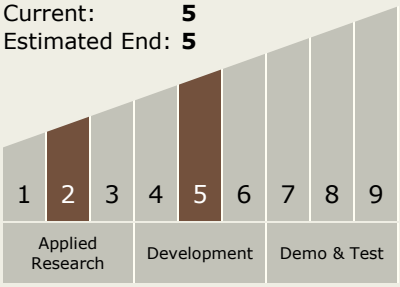
Technology Maturity (TRL)

Start: **2**
Current: **5**
Estimated End: **5**



Technology Areas

Primary:

- TX17 Guidance, Navigation, and Control (GN&C)
  - TX17.1 Guidance and Targeting Algorithms
    - TX17.1.1 Guidance Algorithms

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System